AIST Investment Priorities and Advisory Groups

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ESTO TST
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AIST Background

- AIST Request for Information and Workshop in 1999
  - Produced a broad sweep of relevant information technologies for ESE
  - Results organized into AIST Capability/Need database (technology driver for AIST NRA)
  - RFI report, CN dbms available via ESTO web site
- AIST NRA focussed on space-based technologies
  - Award selections April 2000; most awards in progress
  - Abstracts available via ESTO web site
- AIST Technology Survey
  - Aerospace provided strawman IT technology survey charts; presented to ESSAAC Technology Subcommittee May 2000
  - Received ESTO Action Item: AIST Technology Road Maps
- AIST Technology Projections Workshop held on August 2000
  - Produced workshop proceedings
  - Produced AIST key ground and space-based investment themes

Advisory Group Activities

- AIST program has two categories of technology customers. There is a need for these customers' feedback on info systems technology requirements
  - Mission managers who incorporate IT into space and ground systems for the acquisition of ES data (not unlike sensor and platform technology customers)
  - Earth scientists and others who utilize remote sensing data products and services after data is acquired (broad user community including science and application fields)
- In Jan 2001, the ESIP Federation created an ESTO cluster to address the data user focus
- We still need a mission-focused advisory group for feedback on onboard computing, communications, and command & control activities
- Advisory groups' objectives:
  - Help to identify technology drivers feeding AIST Technology projections
  - Provide input, review, and comment on AIST technology investment recommendations
  - Help ESTO validate and promote technology utility

ESTO Cluster Status

- ESTO Cluster / AIST Data User Advisory Group
  - Community focus is both science and applications users and what they do to produce and use Earth science data products
  - Need to identify "big" technology bottlenecks for ESE, and gather ESIP Fed. Technology lessons learned
  - Will engage COTS vendors, others beyond the Federation to assist (e.g., OGC/Digital Earth, Digital Libraries/DLESE)
  - Will explore new ways to influence NASA AO process for new missions / data centers (role of NewDISS Cluster)
  - Explore process to assist mission PI with IT for data processing and management (identify/adapt technology)
- ESTO Cluster list server established in December
- Karen Moe presented preliminary "ground" investment themes at the January 2001 ESIP Federation meeting
  - Group gave preliminary "okay" to current list (no show-stoppers)
  - Telecons to discuss investment themes are planned this spring

AIST Projections Activities

- AIST Technology Projections Workshop held August 2000
  - Purpose was to identify relevant IT technologies that are the most important for ESE to fund
  - Workshop structured to develop informed projections for 8 critical technology areas:

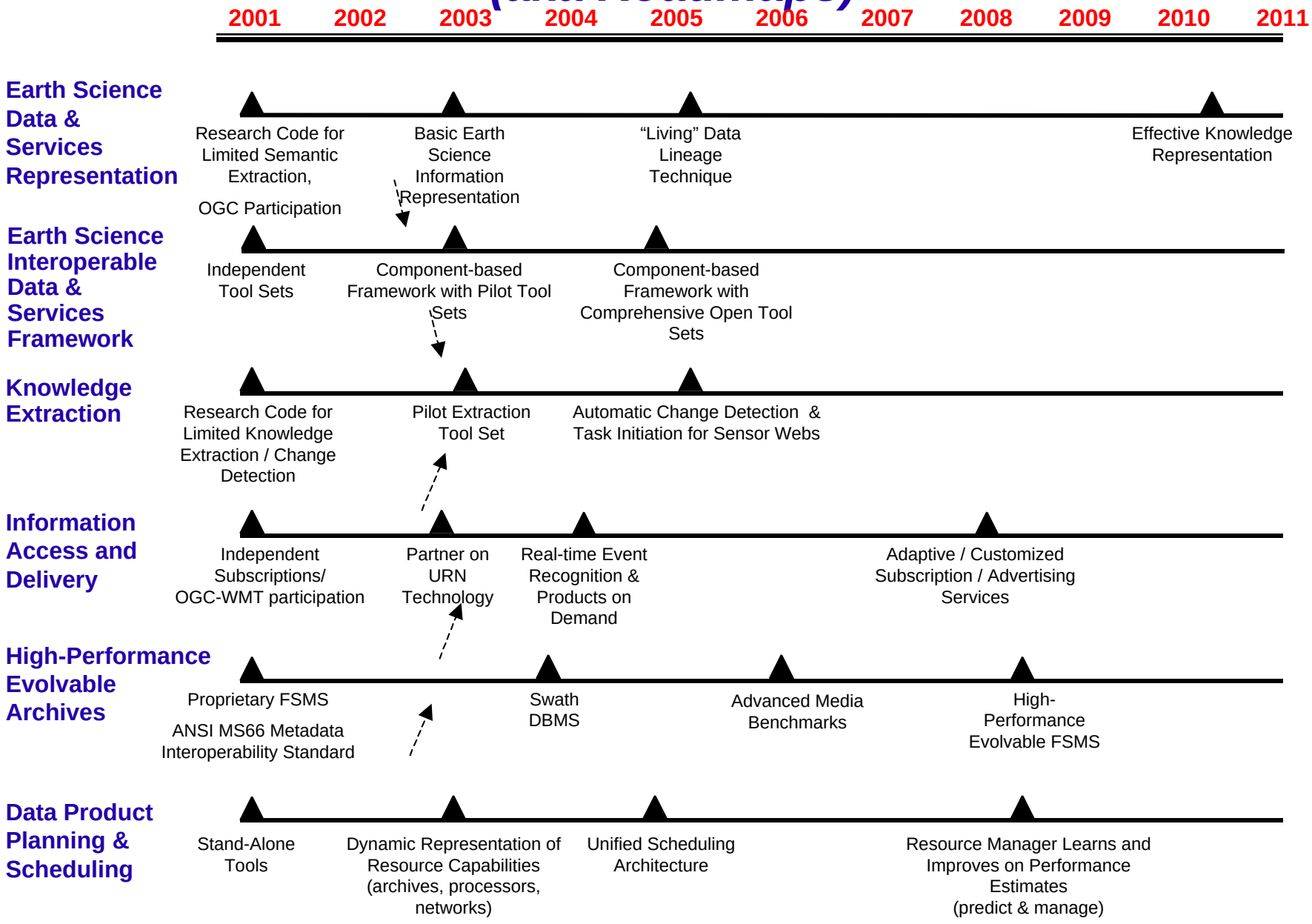
Ground-based Technologies	Space-based Technologies
- Large Archival Storage	- Space Based Computing Architecture
- Data Discovery	- Data Compression and Storage
- Data Exploitation	- Intelligent Platform and Sensor Control
- Data Architectures	- High Speed Data Delivery

  - Technical and ESE program specialists brought together to assess scope of projections, and technology "need" summary (some performance, cost and schedule data collected)

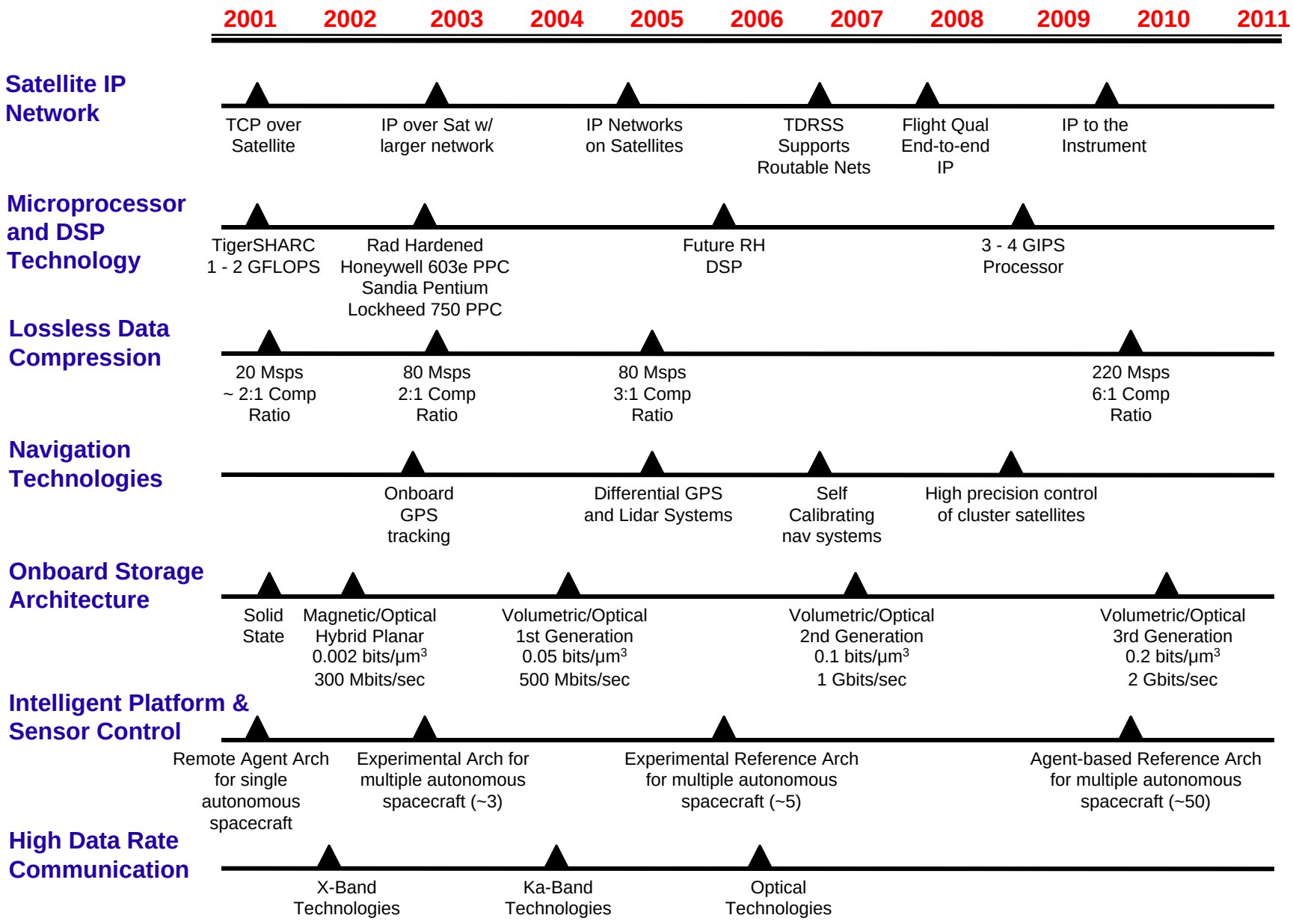
AIST Workshop Follow-Up Activities

- Synthesized AIST Projections Workshop findings into a cohesive package in November (available on ESTO web site)
- Presented status to the ESSAAC Technology and Data Subcommittees in November
- Compared findings to the Capability Needs Matrix for requirements traceability and consistency
- Review and comment by Data User Advisory Group (ESTO Cluster review in progress)
- Review and comment by Mission User Advisory Group (TBD)
- Repeat process, roughly annually

AIST Key "Ground" Investment Themes (aka Roadmaps)



AIST Key "Space" Investment Themes



TST Action Requested

AIST Mission User Advisory Group

- The ESTO AIST needs the support of the TST to identify members of the ESE mission-focused group
- Objectives are the same as for the ESTO Cluster
  - Help to identify technology drivers feeding AIST Technology Projections
  - Provide input, review and comment on AIST technology investment recommendations
  - Help ESTO validate and promote technology utility
- Suggest that TST members identify candidates
  - Familiar with ESE measurements, implications for new missions, and technology drivers
  - Mission focus includes onboard computing, space-space and space-ground communications, and command and control activities

Conclusions

- AIST technology investment activities have resulted in the following products (available at http://esto.gsfc.nasa.gov):
  - RFI technology survey report (1999)
  - AIST technology projections workshop report and presentation charts (2000)
  - Capability / Needs database refinement (1999 & 2000)
    - Cross check of RFI inputs with workshop themes 15 mos. later
  - First draft AIST themes for technology projections (2001)
- Next steps:
  - Assess ESE future missions & ESE Vision to assess completeness of themes (in progress)
  - Review AIST investment themes with Data User and Mission User Advisory Groups
  - Incorporate feedback and validate technology projections
  - Provide feedback to the upcoming ESSAAC Technology and Data Subcommittees (Spring 2001)